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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/567,046	05/05/2008	Johann Guelich	015258-066500US	2410
20350 7590 08/09/2011 KILPATRICK TOWNSEND & STOCKTON LLP TWO EMBARCADERO CENTER EIGHTH FLOOR SAN FRANCISCO, CA 94111-3834			EXAMINER MCDOWELL, LIAM J	
			ART UNIT 3745	PAPER NUMBER
			NOTIFICATION DATE 08/09/2011	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/567,046	Applicant(s) GUELICH, JOHANN	
	Examiner LIAM MCDOWELL	Art Unit 3745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 May 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 February 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/2/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: b1,B2. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "vane outlet angles" as recited in claim 7 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure

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is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.

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- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

3. The disclosure is objected to because of the following informalities:

Page 1, line 2 includes "claim 1" and page 3, lines 23-24 includes "claim 1", "claim 8" and "claim 10". The numbering of claims changes throughout prosecution based on amendment, cancellation, etc. and thus, the claim numbers should not be included in the descriptive portion of the specification.

Appropriate correction is required.

Claim Objections

4. Claims 1-10 are objected to because of the following informalities:

Claims 1-10 recite vanes with various reference numerals in parentheses, which is acceptable under U.S. practice. However, the numbers themselves have no effect on the scope of the claims. Therefore, for each of the different vanes (pressure side, suction side, shortened) the vanes should have a separate designation such as first vane, suction side vane, etc. to readily distinguish one vane or vane set from another.

Claim 1, line 1 "said pump" should be --said pumps--for proper antecedence.

Claim 1, line 3 "one or more vanes" should be --one or more of the vanes--.

Claim 2-8, line 1 "An impeller" should be --the impeller--.

Claim 3, line 2 “a plurality of passage openings” should be –a plurality of the passage openings--.

Claim 5, line 4 “the vanes are shortest” should be –the outlet edges of the vanes are shortest”.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claim 5, line 6 recites “the axis”. It is unclear as to which axis is intended. For Examination purposes, “the axis” is taken to be the axis of rotation.

8. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by “such as” and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely

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exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949).

9. In the present instance, claims 1, 9 and 10 recite the broad recitation “pumps”, and the claims also recite “radial pumps” which is the narrower statement of the range/limitation. Claim 6 recites the broad recitation “rises constantly”, and the claim also recites “rises constantly and clearly if the pump flow Q approaches 0” which is the narrower statement of the range/limitation. Claim 7 recites the broad recitation “designed differently”, and the claim also recites “different chamfer” or “different vane outlet angle” which are narrower statements of the range/limitation. Claim 8 recites the broad recitation “2-20”, and the claim also recites “5-12” which is the narrower statement of the range/limitation. Claim 10 recites the broad recitation “a desired pump flow is distributed to the vanes”, and the claim also recites “part of the pump flow is fed through the at least one passage” which is the narrower statement of the range/limitation.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

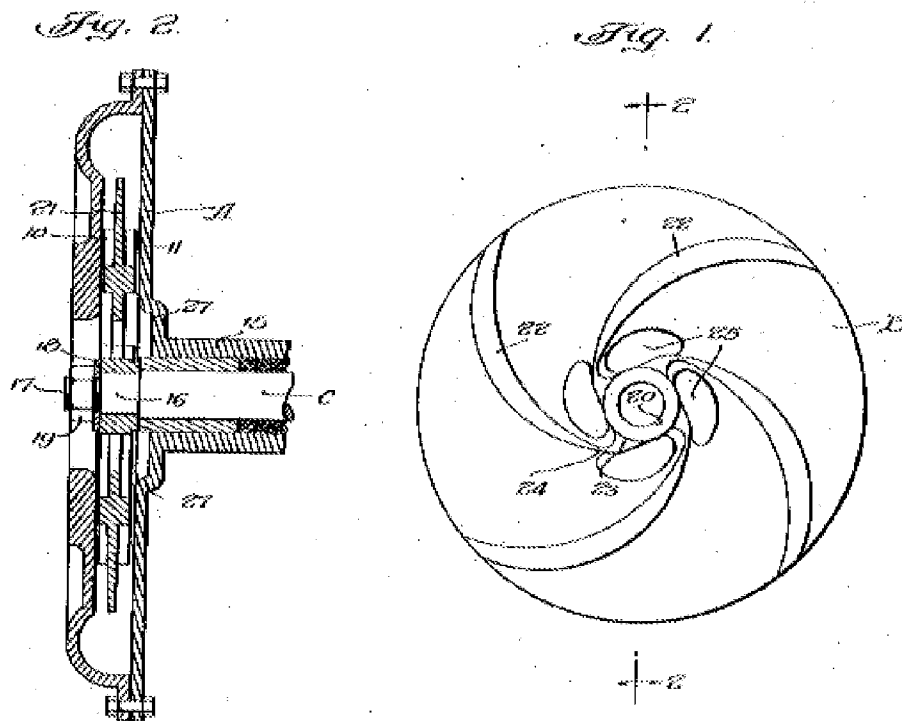
A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1-4, 6, 9 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 1,867,290 to Vitu.

In Reference to Claim 1

Vitu discloses with respect to Figs. 1 and 2 reproduced below, an impeller for pumps, in particular radial pumps, said pump including one or more vanes (22), characterised in that the impeller (B) additionally includes an intermediate wall (21) at which one or more vanes (22) are provided on both sides (see page 1, lines 82-85), and in that at least one passage opening (25) is formed in the intermediate wall (21) in order to distribute a desired pump flow to the vanes (22) on both sides of the intermediate wall. See page 2, lines 45-52.



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In Reference to Claim 2

Vitu discloses the impeller in accordance with claim 1 (as discussed above) wherein the impeller (B) has a suction side (10) which is directed towards a suction opening 13 of the pump, wherein the vanes (22) are connected on the side (11) of the intermediate wall (21) directed away from the suction side to the suction side (10) via the at least one passage opening (25). See Fig. 2.

In Reference to Claim 3

Vitu discloses the impeller in accordance with claim 1 (as discussed above) wherein the impeller (B) has a hub (15) and wherein a plurality of passage openings (25) are formed in a region of the impeller (B) adjacent to the hub (15). See Fig. 1.

In Reference to Claim 4

Vitu discloses the impeller in accordance with claim 1 (as discussed above) wherein the impeller (B) is open towards the suction side (11) or towards both sides (10, 11) (see Fig. 2), and/or wherein the vanes (22) additionally include shortened vanes, so-called splitter vanes. Vitu discloses that the impeller is open. The term “and/or” includes “or” and thus, the second limitation of the shortened vanes is an alternative that need not be met in order for Vitu to anticipate claim 4 in its present form.

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In Reference to Claim 6

Vitu discloses the impeller in accordance with claim 1 (as discussed above) wherein the vanes (22) are formed on both sides of the intermediate wall (21) in such a way that in the case of part load an ordered circulation occurs and the impeller has a characteristic curve which rises constantly, in particular rises constantly and clearly if the pump flow Q approaches 0. See page 1, lines 18-25.

In Reference to Claim 9

Vitu discloses a pump, in particular a radial pump with an impeller in accordance with claim 1 (as discussed above). See page 1, line 3.

In Reference to Claim 10

Vitu discloses a method for the operation of a pump, in particular a radial pump, with an impeller (B), characterised in that the impeller (B) is provided with a intermediate wall (21) at which one or more vanes (22) are provided at each side and which is provided with at least one passage (25) which connects the two sides and in that a desired pump flow is distributed onto the vanes (22) on both sides of the intermediate wall (21), in particular in that one part of the pump flow is fed through the at least one passage (25) from one side of the intermediate wall to the other side. See page 2, lines 21-27.

12. Claims 1-7, 9 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 2,658,455 to Seinfeld.

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In Reference to Claim 1

Seinfeld discloses an impeller for pumps, in particular radial pumps, said pump including one or more vanes (14), characterised in that the impeller (4) additionally includes an intermediate wall (16) at which one or more vanes (14) are provided on both sides (see Fig. 1), and in that at least one passage opening (18) is formed in the intermediate wall (16) in order to distribute a desired pump flow to the vanes (14) on both sides of the intermediate wall. See column 2, lines 17-21.

In Reference to Claim 2

Seinfeld discloses the impeller in accordance with claim 1 (as discussed above) wherein the impeller (4) has a suction side (8) which is directed towards a suction opening of the pump, wherein the vanes (14) are connected on the side (10) of the intermediate wall (16) directed away from the suction side to the suction side (8) via the at least one passage opening (18). See column 2, lines 7-10.

In Reference to Claim 3

Seinfeld discloses the impeller in accordance with claim 1 (as discussed above) wherein the impeller (4) has a hub (2) and wherein a plurality of passage openings (18) are formed in a region of the impeller (4) adjacent to the hub (2). See Fig. 1.

In Reference to Claim 4

Seinfeld discloses the impeller in accordance with claim 1 (as discussed above) wherein

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the impeller (4) is open towards the suction side (8) or towards both sides (10, 8) (see Fig. 1), and/or wherein the vanes (22) additionally include shortened vanes, so-called splitter vanes. Seinfeld discloses that the impeller is open. The term “and/or” includes “or” and thus, the second limitation of the shortened vanes is an alternative that need not be met in order for Seinfeld to anticipate claim 4 in its present form.

In Reference to Claim 5

Seinfeld discloses the impeller in accordance with claim 1 (as discussed above) wherein the vane outlet edges are chamfered on the suction side (8) and/or on the side of the intermediate wall (16) remote from the suction side (10) in particular in such a way that the vanes (14) are shortest on the suction side (8) in the radial direction, whereas the vanes (14) on the side (10) remote from the suction side of the intermediate wall (16) have outlet edges parallel to the axis. See Fig. 1 wherein the vanes decrease in the radial direction and the outlet edge (near 12) is parallel to the axis of rotation.

In Reference to Claim 6

Seinfeld discloses the impeller in accordance with claim 1 (as discussed above) wherein the vanes (14) are formed on both sides of the intermediate wall (16) in such a way that in the case of part load an ordered circulation occurs and the impeller has a characteristic curve which rises constantly, in particular rises constantly and clearly if the pump flow Q approaches 0. See column 2, lines 15-25.

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In Reference to Claim 7

Seinfeld discloses the impeller in accordance with claim 1 (as discussed above) wherein the vanes (14) are designed differently on both sides of the intermediate wall (16) in particular that the vanes (14) on both sides of the intermediate wall (16) have different chamfers of the outlet edges and/or different vane outlet angles and/or different numbers of vanes. The top vanes have a different outlet angle than the bottom vanes (see Fig. 1).

In Reference to Claim 9

Seinfeld discloses a pump, in particular a radial pump with an impeller (1) in accordance with claim 1 (as discussed above). See column 1, line 1.

In Reference to Claim 10

Seinfeld discloses a method for the operation of a pump, in particular a radial pump, with an impeller (4), characterised in that the impeller (4) is provided with a intermediate wall (16) at which one or more vanes (14) are provided at each side and which is provided with at least one passage (18) which connects the two sides and in that a desired pump flow is distributed onto the vanes (14) on both sides of the intermediate wall (16), in particular in that one part of the pump flow is fed through the at least one passage (18) from one side of the intermediate wall to the other side.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vitu in view of US 4,981,413 to Elonen et al. (Elonen).

In Reference to Claim 4

Vitu discloses the impeller in accordance with claim 1 (as discussed above) wherein the impeller (B) is open towards the suction side (11) or towards both sides (10, 11), but does not explicitly disclose wherein the vanes (22) additionally include shortened vanes, so- called splitter vanes.

In an analogous art, Elonen teaches shortened vanes 14" to ensure that the pump operates normally (see column 6, lines 21-32). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the impeller of Vitu to include shortened vanes as taught by Elonen to ensure that the pump operates normally.

15. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vitu in view of Applicant's Admitted Prior Art (AAPA).

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In Reference to Claim 8

Vitu discloses the impeller in accordance with claim 1 (as discussed above) but does not explicitly disclose wherein the impeller (B) has a specific rotational speed n_q in the region of 2 - 20 min.^{-1} , in particular in the region of 5 - 12 min.^{-1} .

As per AAPA (page 1, line 20 to page 3, line 4 of the present application) it is known that centrifugal pumps operate in these ranges depending on the required capacities. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the impeller of Vitu to have a specific rotational speed n_q in the region of 2 - 20 min.^{-1} , in particular in the region of 5 - 12 min.^{-1} as taught by AAPA depending on the required capacity of the pump.

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 3,816,020 and US 3,944,406 are cited for the teaching of pumps with vanes on both sides of an intermediate wall with openings in the wall for dividing the flow between the two sides of the wall.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LIAM MCDOWELL whose telephone number is (571)270-1611. The examiner can normally be reached on Monday-Friday 9:00 am-5:30pm EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, EDWARD LOOK can be reached on (571)272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/LIAM MCDOWELL/
Examiner, Art Unit 3745

/EDWARD LOOK/
Supervisory Patent Examiner, Art Unit 3745